

ABSTRACT OF THE DISCLOSURE

An X-ray emitted from an incident optical system is incident on a sample supported by a sample support mechanism, and a diffracted X-ray is detected by a receiving optical system. The incident optical system includes an X-ray source and a multilayer-film mirror. An attitude controlling unit of the sample support mechanism switches a condition of the sample support mechanism from a state maintaining the sample to have a first attitude in which a normal line of the surface of the sample is parallel with a first axis of rotation to another state maintaining the sample to have a second attitude in which the normal line of the surface of the sample is perpendicular to the first axis of rotation. When the receiving optical system is rotated around the first axis of rotation while maintaining the sample in the first attitude, in-plane diffraction measurement is possible. On the other hand, when the receiving optical system is rotated in the same way while maintaining the sample in the second attitude, out-of-plane diffraction measurement is possible.